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The Effect of Biomass Burning on Tropospheric Ozone Production: Three-Dimensional, Global Modeling Results*

C.S. Atherton, J.E. Penner, J.J. Walton (Global Climate Research Division, Lawrence Livermore National Laboratory, P.O. Box 808, Livermore, CA 94551; e-mail: cyndi@tropos.llnl.gov)

Tropospheric ozone (O_3) is formed when CO, CH_4, and non-methane hydrocarbons (NMHCs) react in the presence of sunlight and NO_X. In the tropics and southern hemisphere, biomass burning is a significant source of many O_3 precursors. Thus, biomass burning may strongly affect levels of O_3 and other species in many regions of the world.

We have developed a three-dimensional, global chemistry-transport-deposition model with 76 prognostic chemical species (including O_3, OH, PAN, NO_X, HNO_3, isoprene, and a full suite of non-methane hydrocarbons). Here we present results of both a baseline simulation, and a simulation in which biomass burning emissions are significantly reduced. The results show the extent and magnitude to which biomass burning emissions affect tropospheric O_3 production on a global scale.

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2. 007724433
3. (a) Cynthia Atherton
   LLNL
   P.O. Box 808, L-262
   Livermore, CA 94551

   (b) Tel:510-422-1825
   (c) FAX:510-422-5844
   (d) D-Mail: cyndi@tropos.llnl.gov
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